

REMARKS

Claim 23 is objected to under 37 CFR 1.75(c) as being of improper dependant form for failing to further limit the subject matter of the previous claim. Claims 21, 24-26 and 28-46 are rejected under 35 U.S.C 102 (b) as being anticipated by MacFarland wherein an "instrument includes an adjustment device (22) comprising a means for bringing the string to proper pitch in at least one tuning quickly and a separate means whereby the string is further tuned at the proper playing pitch. MacFarland also discloses the use of a pivoting an (sic) anchor (60) for tensioning the string to be tuned and a means for locking the adjustment device (see column 4, lines 65-69). MacFarland further discloses the use of a tuner (110) that comprises a thumbscrew. MacFarland further discloses the use of an L-shaped lever (62) and a tremolo." Claim 27 is objected to as being dependent upon a rejected base claim.

Office Action Summary, Disposition of Claims, Item 6, shows that claims 21-26 and 28-46 are rejected; however, there is no discussion in the DETAILED ACTION regarding claim 22.

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In the applicant's BACKGROUND OF THE INVENTION, page 4 lines 1-6:

"In the Proesldorfer U.S. Pat. No. 2,304,587, string tensioning devices on the tailpiece for fine tuning the pitch of the strings ... were disclosed, however, such pitch adjustment is quite limited in range and designed to offer minor adjustment of pitch rather than raising and adjusting from an untensioned condition the strings by the tuners placed on the head of the instrument."

It is apparent to those skilled in these arts that:

- tuning pegs are devices generally located on the head of the instrument for bringing strings to a tuned or pitched condition from an untensioned condition;
- fine tuners are devices located on the bridge and/or tailpiece portion of a stringed musical instrument that may or may not comprise tremolos in general or fulcrum tremolos in particular that make limited adjustments to strings already tensioned to proper playing pitch; and
- tremolos are separate devices located on the body of the stringed instrument as a part of the bridge and/or tailpiece portion for varying the tuning of strings already in a condition at proper playing pitch and ideally returned to that initial tuned condition.

In the applicant's SUMMARY OF THE INVENTION, on page 2, line 16 - page 3, line 8:

"In ... changing the pitch of a string, two different operations are carried out. In one operation, the length of the string between the first and second critical points is adjusted, such as between the nut and the bridge element, and this is known as harmonic tuning. The second operation involves increasing or decreasing the tension on a given string for raising or lowering the string pitch. This second operation is generally characterized as pitch tuning. In practice, initially harmonic tuning is carried out and then pitch tuning.

A problem existing in tuning the strings is that the two different tuning operations tend to conflict. In harmonic tuning, the pitch is lowered when the distance between the critical points is increased and, conversely, when the distance is shortened, the pitch is raised. In pitch tuning, when the tension is increased, the pitch is raised and when the tension is decreased, the pitch is lowered. These different operations present difficulties in pitch tuning and maintaining the tuned condition of a stringed musical instrument.

When a fulcrum tremolo is used, there is the tendency when increasing string tension and raising of pitch, also to increase the length of the string, and, conversely, when decreasing string tension and lowering pitch, also to decrease the string length. Accordingly, when using a fulcrum tremolo, these counteracting features are not always balanced."

McFarland Pat. No.: 4,611,523 is wholly directed to a novel tool for assisting in the setting of the intonation, also known to those skilled in the art as harmonic tuning, of a Floyd Rose fulcrum tremolo and as such is not a part of a stringed instrument. The patent itself is entitled "DEVICE FOR SETTING THE INTONATION OF THE INDIVIDUAL STRINGS OF A FRETTED STRING INSTRUMENT".

Further, in the ABSTRACT:

"A device for setting the intonation of the individual strings of a fretted stringed musical instrument, such as a guitar ... the intonation setting device comprises a tool ... "

In McFarland's DEVICE FOR SETTING THE INTONATION OF THE INDIVIDUAL STRINGS OF A FRETTED STRING INSTRUMENT, COLUMN 2, paragraph 3, lines 20 - 27:

"A principal object of the present invention is to provide a device or tool that is applicable to the individual string clamping and fine tuning apparatus for each string, of the type disclosed in the Rose patent, to readily permit setting of the string intonation while maintaining full bridge clamping action on the string as well as adequate tension."

Accordingly, it is apparent that the MacFarland device:

- is a tool applied to a stringed musical instrument temporarily for making an intonation adjustment and when accomplished is removed from the instrument; and, therefore, does not comprise a stringed musical instrument or portions thereof such as its head, body neck, nut, bridge, strings, etc.;
- is further directed to the sole use with Floyd Rose fulcrum tremolos;
- where such fulcrum tremolos are already tuned to proper playing pitch as a pre-requisite for using such a tool;
- therefore, is neither directed towards pitch tuning of the strings; nor
- capable of raising an untensioned string to proper playing pitch.

Further in the applicant's BACKGROUND OF THE INVENTION on page 12, lines 4-7:

"Macro-tuners refer to tuners with the capacity to raise and adjust from an untensioned condition strings to proper playing pitch, providing for alternate tunings, and compensation for substantial string stretch during the life of the string without additional means."

And on page 24, lines 12-14, a device for tensioning or pitch tuning a string in a stringed musical instrument is presented:

"Another primary object of the present invention is to provide an adjustment device for bringing the strings to pitch at one of several coarse tunings quickly and then fine tuned by separate means."

And further, page 24, lines 24-30 and page 25, lines 1-2:

"A tuning device is provided for securing the string at the head of the instrument and then making a fine tuning adjustment by means of a thumb screw. The tuning device is pivoted on the head end of the stringed musical instrument and is movable between several tensioned positions and a untensioned or released position. In the tensioned position the anchorage for the string is located relatively close to the nut at the head end of the instrument so that little bending of the string takes place."

The tuning device is formed as a two armed L-shaped lever pivotally mounted on a bracket secured to the head end of the instrument in the region of the nut. The string is secured at a free end of one arm of the lever and a locking means for the device is provided adjacent the free end of the other lever arm. The locking means is in the form of a forceps-like clamp containing a plurality of teeth so that each tooth provides a different locking position. By changing the locking position the tension on the string can be quickly increased or decreased as required for providing preset pitch changes."

The prior art cited does not describe:

- an adjustment tuning device for bringing the strings on a musical instrument to proper playing pitch from an untensioned condition by combining two separate means: one where one of several pitch tunings is quickly effected to a string from an untensioned condition and another where the string is then finely tuned at this pitch;
- where such a device with these attributes is pivoted about an axis transverse the direction of the strings;
- where such a device with these attributes can provide preset pitch changes;
- where such a device with these attributes is located on either the head or body of the instrument; and, further
- where such a device with these attributes comprises a tremolo in general or a fulcrum tremolo in particular and that the axis associated with the adjustment device may not be the same as the pivot axis associated with the tremolo means which is also transverse the direction of the strings; or, further
- where such a device with these attributes when positioned on the body and includes the bridge portion in the tuning mechanism provides a means for simultaneously achieving harmonic and pitch tuning when the second critical point travels a critical distance on the bridge during the pivoting of the adjustment device about its associated axis into proper playing pitch; and even more so

- where such a device with these attributes comprises a bridge tail-piece assembly in general, a tremolo or a fulcrum tremolo in particular.

Further, the applicant claims when the adjustment device described above is mounted on the instrument body and includes the bridge portion so to be pivotable about the device axis, that simultaneous harmonic and pitch tuning is achieved at proper playing pitch.

Claim 21 is directed towards devices as described above wherein the string is raised from an untensioned condition to proper playing pitch where such device is located on the stringed musical instrument.

Claim 22 limits the placement of this device to the body of the instrument rather than either the neck or the head and as such claims dependant from claim 22, claims 35-43, are directed to the peculiarities of that positioning.

In a similar way claim 23 limits the placement of the device to the area of the head rather than the neck or body and the claims dependant from it, claims 24-34, address those particularities accordingly.

In the applicant's SUMMARY OF THE INVENTION, page 11, lines 3-6,

"Yet another object of the invention is to provide an improved bearing arrangement for a fulcrum tremolo for assuring the proper and wide range of pivotal movement while limiting wear or friction which would tend to defeat the effectiveness of the tremolo."

Further, in the SUMMARY OF THE INVENTION, page 14, lines 22-26:

" ... the base plate is pivotally supported in a bearing assembly containing ball bearings adjustably mounted so that the plate can be variably spaced from the surface of the body."

And further, in the SUMMARY OF THE INVENTION, page 14, lines 30 - page 15, line 1, the applicant describes an alternative to the bearing arrangement mentioned above :

"Also by using self aligning bearings or bearings affording a universal type movement, it is possible effectively to support the base plate, when its axis is not parallel with the surface of the body."

And further, in the SUMMARY OF THE INVENTION, page 15, line 5-8:

"As compared to the knife-edge pivot support of the fulcrum tremolo disclosed in the Rose U.S. Pat. No. 4,1717,661, it is possible to limit the wear of the bearing so that unnecessary friction is not developed which would interfere with the return of the base plate to initial position".

Separately, the applicant claims for an improved bearing pivot means which ensures the fulcrum tremolo returns to initial position (without wear associated with knife-edge pivot means) and adjustably supports the fulcrum tremolo comprising either:

- a bearing assembly; or
- a portion of a ball bearing surface affording universal joint type movement.

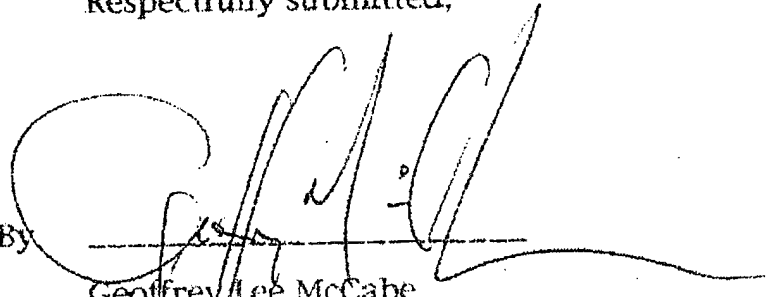
Claims 45 and 46 are directed to the subject matter of bearings at the pivot point on a fulcrum tremolo. McFarland does not disclose this subject matter.

Therefore, none of the prior art cited is a basis for objection or rejection for any or all of the claims; however, claim language has been rewritten in claims 21 - 24, 37 and 44 to include the limitations "from an untensioned condition" and "pitch" tunings to further distinguish from "harmonic" tunings or setting the intonation in order to reflect a greater clarity of the applicant's invention.

In view of the above amendments, it is believed that this Application is now in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

By


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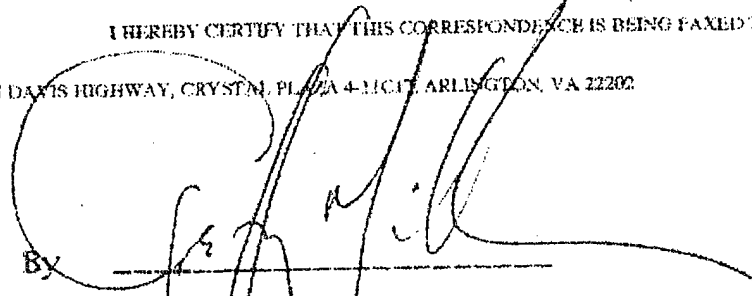
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